

I 14494-66

ACC NR: AT6006265

for zero drift of the instruments and for the Eötvös effect. Laboratory tests showed an instrument accuracy of 1.5—2.0 mgal. Analysis of the observational materials showed that the root-mean-square error in determining the force of gravity at ocean stations using readings from four instruments is ± 3.5 mgal. [14]

SUB CODE: 08/ SUBM DATE: 29Oct65/ ATD PRESS: 4198

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Card 2/2

L 35896-66 EWI(1) GW/GD

ACC NR: AT6006266

(N)

SOURCE CODE: UR/0000/65/000/000/0121/0135

AUTHOR: Kuzivanov, V. A.; Magnitskaya, Ye. I.; Marakhovskaya, L. A.

ORG: None

TITLE: A method for the processing of recordings of overdamped gravimeters mounted on ships and aircraft

SOURCE: AN SSSR. Institut fiziki Zemli. paratura i metody morskikh gravimetriceskikh nablyudeniy (Apparatus and methods of marine gravimetric observations). Moscow, Izd-vo Nauka, 1965, 121-135

TOPIC TAGS: gravimetry, gravimetric analysis, graphic data processing, RESEARCH SHIP INSTRUMENTATION, GRAVIMETER

ABSTRACT: Gravimeters designated for use on ships and aircraft are often highly damped in order to reduce the influence of the mobile support. Such operating conditions require special methods for data processing. Consequently, the authors establish and discuss at considerable length four possible methods for the determination of the changes in gravimeter readings between the starting and current observations. A thorough analysis of experimental data gathered by the GAL and Gss-2 gravimeters shows that the error of gravimeter readings using all four methods is within $\pm 1.2-1.8$ mg1. One of the methods requires a processing time

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of 3.5—4 hr, whereas two other approaches could be accomplished in 10—12 min. The appropriate approaches should be used in dealing with a) not too perturbed graphs, b) perturbed graphs of small period, and c) perturbed graphs with large periods. Orig. art. has: 16 formulas, 11 figures, and 1 table.

SUB CODE: 08, 09/ SUBM DATE: 29Oct65/ORIG REF: 003

Card 2/2 *llb*

L 32161-66 EWT(1) GW

ACC NR: AP6010065

(N)

SOURCE CODE: UR/0387/66/000/003/0063/0073

AUTHOR: Kuzivanov, V. A.; Kogan, M. G.; Magnitskaya, Ye. I.

37
B

ORG: Institute of Physics of the Earth, Academy of Sciences, SSSR (Institut fiziki Zemli, Akademii nauk SSSR)

TITLE: The effect of horizontal and vertical acceleration on the readings of a strongly damped gravimeter

12

SOURCE: AN SSSR. Izvestiya. Fizika Zemli, no. 3, 1966, 63-73

TOPIC TAGS: gyrostabilized platform, ~~accelerometer~~, gravimeter, ACCELERATION EFFECT

ABSTRACT: A study was made of the effect of horizontal and vertical accelerations on the readings of a pendulum-type gravity meter, mounted on an ideal gyrostabilized platform in an ideal universal joint. The resulting cross-coupling effect was analyzed theoretically, the parameters being related by the differential equation:

$$\ddot{\epsilon} + 2\lambda\dot{\epsilon} + \left(n^2 + \dot{\gamma}^2 - \frac{\ddot{X}}{l}\right)\epsilon = +\frac{g_r}{l} + \frac{\ddot{Z}}{l}.$$

where ϵ is the angle of deviation of the pendulum from the horizontal, \ddot{X} is the hori-

UDC: 550.831

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zontal acceleration, n is the natural frequency of the pendulum gravimeter, λ is the damping characteristic, l is the reduced pendulum length and γ is the angular velocity of the support along the Z axis. A solution of this equation was derived of the form

$$\epsilon = \epsilon_0 + \delta\epsilon_0,$$

where ϵ_0 is the solution of the 'abridged' equation:

$$2\lambda\dot{\epsilon}_0 + \left(n^2 - \frac{\ddot{X}}{l} + \dot{\gamma}^2 \right) \epsilon_0 = + \frac{\ddot{g}_r}{l} + \frac{\ddot{Z}}{l}.$$

The solution of ϵ_0 was an expanded integral equation while that of ϵ was an infinite trigonometric series. The magnitude of the cross-coupling effect was estimated by inserting numerical values for the above parameters and variables; for $\ddot{X} \approx \ddot{Z} \approx 50$ gal this effect reached 50 mgl and higher. The orbital acceleration was calculated at 125 mgal for $\ddot{X}=\ddot{Z}=50$ gal and $\omega=1 \text{ sec}^{-1}$. Formulas were also derived for the changes in gravitational field with time using the same parameters. Numerically, this was calculated to be 1.4 mgl for $\partial g/\partial x = 10 \text{ mgl/mile}$, $n^2=100 \text{ sec}^{-2}$ and $2\lambda=5000 \text{ sec}^{-1}$. Orig. art. has: 1 table, 63 formulas.

SUB CODE: 08/ SUBM DATE: 19Feb65/ ORIG REF: 003/ OTH REF: 001

Card 2/2 *JS*

ACC NR: AP7005646

SOURCE CODE: UR/0413/67/000/002/0094/0094

INVENTOR: Naumenko-Bondarenko, I. I.; Maslov, I. A.; Kuzivanov, V. A.

ORG: None

TITLE: A method for calibrating gravimeters. Class 42, No. 190596

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 94

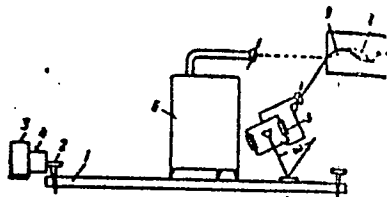
TOPIC TAGS: gravimeter, instrument calibration equipment

ABSTRACT: This Author's Certificate introduces a method for using base inclinations to calibrate gravimeters designed for measuring the force of gravity in motion. The amplitude and phase characteristics of the instruments are determined from combined recordings of base inclinations and the readings of the sensing element. The variation in base inclinations is periodic with differing frequency and amplitude.

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1—test stage; 2—adjustment screw; 3—electric motor; 4—speed reducer; 5—photo-electric registration device; 6—gravimeter; 7—photographic film; 8 and 9—recording

SUB CODE: 08/ SUBM DATE: 18Aug65

Card 2/2

BRUDNAYA, A.A., kand. sel'skokhoz. nauk; KUREPKO, I.A.; PARFILOVA, M. Ye, kand. biolog. nauk; KOZAR', I.M., agronom; BEZPYATYKH, A.M., agronom-entomolog; KARGIN, V.M., agronom; KUZIIYEV, S., aspirant; TKHORIK, I.S.

From the practices in the use of poisonous chemicals. Zashch. rast. ot vred. i bol. 9 no.10:26-27 '64 (MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy ir titut zerna i produktov yego pererabotki (for Erudnaya, Kurepko). 2. L'vovskiy awl'sko'khozyaystvennyy institut (for Parfilova, Kozar'). 3. Bakhchisarayskoye proizvodstvennoye upravleniye (for Bezpyatykh). 4. Kolkhoz "Pobeda")for Kargin). 5. Sredneaziat-skiy institut zashchity rasteniy (for Kuziyev). 6. Zaveduyu-shchiy otdelom zashchity rasteniy Yaroslavskoy opytnoy stantsii (for Tkhorik).

KHAN, G.A.; KUZ'KIN, A.S.

Study of electrochemical transducers for the control of residual cyanide concentrations in the pulp. Izv.vys.ucheb.zav.; tsvet. met. 3 no.2:43-49 '60. (MIRA 15:4)

1. Krasnoyarskiy institut tsvetnykh metallov, kafedra obogashcheniya poleznykh iskopayemykh.

(Flotation—Equipment and supplies)
(Potentiometric analysis) (Cyanide)

LIVSHITS, A.K.; KUZ'KIN, A.S.

Action of gangue depressants in xanthate flotation with
hydrocarbon oils. TSvet.met. 35 no.2:9-11 F '62. (MIRA 15:2)
(Flotation--Equipment and supplies)

LIVSHITS, A.K.; KUZ'KIN, A.S.

Improving conditions and flow sheet for the flotation of
Dzhezkazgan copper sulfide ores with the use of hydrocarbon
oils. Sbor. nauch. trud. Gintsvetmeta no.19:212-239 '62.

(MIRA 16:7)

(Dzhezkazgan region--Copper ores)
(Flotation)

LIVSHITS, A.K.; KUZ'KIN, A.S.

Action of hydrocarbon oils during flotation. TSvet. met. 36
no.5:17-24 My '63. (MIRA 16:10)

ZORIN, L.F., inzh.; KUZ'KIN, G.V., inzh.

Mechanized coal mining with augers. Mekh. i avtom. proizv.
18 no.4:23-24 Ap'64. (MIRA 17:5)

ZOBIN, L.F., ingzh.; KUZ'KIN, G.V., ingzh.

Using the ShBM-2m cutter-loader in rapid development mining. Shakht.
stroil. 7 no.1:20-22 Ja '63. (MIRA 16:2)

1. Shakhta "Novovolynskaya" No 8 imeni V.I. Lenina.
(Lvov-volyn' Basin—Mining machinery)

SHAPIRO, I.B.; ULTURGASHEV, S.P.; MUZYAYEV, V.F.; ANZHIGANOV, V.S.;
KUZ'KIN, M.G., red.; SAMRINA, A.A., tekhn.red.

[Longevity; long-lived residents of Khakassia] Dolgoletie;
dolgozhiteli Khakassii. Abakan, Khakasskoe knizhnoe izd-vo,
1960. 70 p. (MIRA 14:2)
(Khakass Autonomous Province--Longevity)

KUZ'KIN, Mikhail Gavrilovich

[Railroad turns the lights on] Doroga zazhigaet ogni.
Abakan, Khakasskoe knizhnoe izd-vo, 1963. 146 p.
(MIRA 18:1)

ca

9

Enrichment of tin concentrates S. F. Kurkin. *Metal-
lurgiya* 10, No. 9, 81 (1911); *Chem. Zvesti* 1943, 1, 1927.
By combined disintegration and wet classification before
the actual dressing the Sn content of the concentrates can
be increased by 20-25%, while the Sb content is reduced
to 1% of its original value. During this operation the Sn
loss amounts to 0.2-0.5 or 0.1-0.3% of the original con-
tent (1.5 or 0.8%). High grade Sn concentrates are of
better use than low grade concentrates, since those with
40-70% Sn yield 1% to 1.5% of the slag resulting from con-
centrates contg. 40% Sn. H. Barschall

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

SECTION	SUBSECTION	CLASSIFICATION	REMARKS
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AUTHOR		TITLE		SUBJECT		CLASSIFICATION		NOTES	
Kushin, Gennadiy Zhebr.		Practical application of electrostatic separation.		S. P.		M. 11.		review.	
Kushin, Gennadiy Zhebr.		Practical application of electrostatic separation.		S. P.		M. 11.		review.	

KTSKIN. S.P.

102 KIN, S.I.; KUZ'KIN, S.P.; GOLOV, V.M.

Radiographic method of studying the interaction of flotation
reagent with the surface of minerals. TSvet.met. 28 no.1:13-19
Ja-F '55. (MIRA 10:10)

1. Mintsvetmetzoloto.
(Flotation) (Radiography)

Kuz'kin, S. F.

137-1958-2-2231

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 4 (USSR)

AUTHORS: Kuz'kin, S. F., Nebera, V. P.

TITLE: Flocculating Suspended Matter by Means of Polyelectrolytes
(Agregatsiya suspenziy polielektrolitami)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 13, pp 10-14

ABSTRACT: An analysis of data taken from the literature and of experimental data led to the conclusion that one of the most important ways of accelerating thickening was through the action on the pulp of chemical substances capable of flocculating the solid pulp particles. Most effective were polymers of certain specially treated compounds, namely, polyelectrolytes.

Bibliography: 7 references.

A. Sh.

1. Compounds--Polymerization 2. Polymers--Test methods 3. Polymers
--Test results

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KUZ'KIN, S.F.

137-1958-3-4525

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 7 (USSR)

AUTHORS: Kuz'kin, S. F., Golov, V. M.

TITLE: The Action of Fe Compounds in Flotation of Beryl (Deystviye soyedineniy zheleza pri flotatsii berilla)

PERIODICAL: Sb. nauchn. tr. Mosk. in-t tsvetn. met. i zolota i VNITO
tsvetn. metallurgii, 1957, Nr 26, pp 7-20

ABSTRACT: An examination of the results of research dealing with the effect of Fe compounds on the flotation of beryl and some accompanying minerals, by means of cation and anion collectors. Radioactive tracers were employed in the course of the studies. The absolute amount of the attached substance was determined directly on the surface of the powders, rather than by the residual concentration of the solution. The following was established: in an acid medium the following various Fe compounds become irreversibly attached on the surface of minerals: cations of Fe, products of hydrolysis of FeCl_3 , positively charged sol of Fe hydroxide. In an alkaline medium the attachment of radioactive Fe is at a minimum and is independent of the nature of minerals involved. Starting with Fe^{++} and the products of hydrolysis

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137-1958-3-4525

The Action of Fe Compounds in Flotation of Beryl

of FeCl_3 , the activation capacity of various Fe compounds decreases toward the positively charged sol of Fe hydroxide; Fe sorbed in an alkaline medium with a pH of 9-11 is a very weak activator of some minerals. Oleate of Na reacts chemically in a definite proportion with tri-valent Fe adsorbed in an acid medium; the resulting compound is soluble in glycerin. The area of minerals covered by this flotation-active compound does not exceed that of the saturated monomolecular layer. The most rational methods for neutralization of the activating effect of Fe compounds were evolved, namely: a) the employment of reagents that do not form chemical compounds with the activator (IM-11, lauryl-amine); b) prevention of the fixation of ions and of Fe compounds on the surface of minerals by means of transforming them, within the pulp mass, to an insoluble or non-adsorbent state (by utilizing alkaline depressers) and removing the adsorbed Fe from the surface of minerals by means of acid solutions.

A. Sh.

Card 2/2

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 4 (USSR) SOV/137-58-12-23933

AUTHORS: Kuz'kin, S. F., Golov, V. M.

TITLE: The Action of Calcium Compounds in Beryllium Flotation (Deystviye soyedineniy kal'tsiya pri flotatsii berilla)

PERIODICAL: Sb. nauchn. tr. Mosk. in-t tsvetn. met. i zolota, 1957, Nr 27, pp 43-51

ABSTRACT: The cause of diminished extraction of Be and breakdown in selection in highly caustic media is the formation, on mineral surfaces, of a chemical compound between the Ca ion adsorbed on the mineral surfaces and the collector. Methods of neutralizing the harmful effects of Ca compounds are suggested.

K. A.

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KUZ'KIN, S.F.; NEERA, V.P.

Studying the effect of high-molecular reagents on the process
of thickening. Izv. vys. ucheb. zav.; tsvet. met. 2 no.3:44-49
'59. (MIRA 12:9)

1. Krasnoyarskiy institut tsvetnykh metallov, Kafedra obogashcheniya
rud redkikh i radioaktivnykh metallov.
(Ore dressing--Equipment and supplies)

KUZ'KIN, S.F.; KOROVIN, N.V.

Research carried out in 1958 by the M.I.Kalinin Institute
of Nonferrous Metals and Gold in Moscow. Izv.vys.ucheb.zav.;
tsvet.met. 2 no.4:151-152 '59. (MIRA 13:1)
(Moscow--Metallurgical research)

KUZ'KIN, S.F.; BERLINSKIY, I.I.

Increasing the secondary concentration of scheelite and
powellite. Izv.vys.ucheb.zav.; tsvet.met. 2 no.6:52-59
'59. (MIRA 13:4)

1. Krasnoyarskiy institut tsvetnykh metallov. Kafedra
obogashcheniya rud redkikh metallov.
(Ore dressing) (Scheelite)

18.2000

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S/136/60/000/02/005/022
E193/E463

AUTHORS: Kuz'kin, S.F., Nebera, V.P. and Mal'tseva, I.I.

TITLE: Application of Polyacrilamide in Thickening of
Scheelite Concentrates

PERIODICAL: Tsvetnyye metally, 1960, Nr 2, pp 17-20 (USSR)

ABSTRACT: In continuation of work carried out at the Institute of Non-Ferrous Metals (Ref 4, 6, 7), the authors of the present paper have conducted a series of experiments on improving the efficiency of the thickening operations with the aid of polyacrilamide, which is generally regarded as a very good flocculating agent; (the product used in these experiments had been prepared in a pilot plant at the Leningrad Metallurgical Research Institute by polymerization of the products of hydrolysis of acrylonitrile with sulphuric acid; the colourless, gelatinous mass obtained in this manner contained 8% of active polyacrilamide). The experiments were conducted on beneficiation products obtained at the Ingichinsky Plant; the ore, treated at this plant at the time of the present investigation, contained 0.3 to 0.6 WO₃ in the form of scheelite, finely dispersed in pyroxenes and

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pyroxene-garnet skarns, and up to 15% of gangue minerals (granite and lime-stone). The ore was ground (to contain 55 to 60% of the -0.074 mm fraction) in the presence of sodium carbonate (approximately 4.5 kg/t), pH of the pulp being maintained at 9.7 to 10.0; prior to flotation, the pulp was treated with sodium silicate (1.5 kg/t), after which oleic acid (0.27 kg/t) mixed with equal quantity of kerosene, was added. The roughing flotation yielded concentrate in the form of pulp (23 to 24% solids) containing 2 to 4% WO_3 , which was fed into an 8 m thickener; the slime discharge from the thickener (which was discarded) contained 50 to 60 g of solids per litre, the WO_3 content in these solids being 0.6 to 0.8%, ie higher than in the crude ore. To avoid these losses of scheelite, the slime discharge from the thickener was, for some time, returned to the flotation machine; this step, however, failed to produce the desired results, owing to the fact that scheelite can be successfully floated only directly after being conditioned with the flotation reagents and loses its

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flotability after being circulated; for this reason, scheelite present in the slime discharge was not recovered and was lost in the flotation tailings, apart from the fact that the flotation process itself was adversely affected by the introduction of the slime discharge into the feed. The crude scheelite concentrate (ie the sand discharge from the thickener), mixed with sodium silicate (5.5 kg/t) was steamed out at 85 to 90°C and fed into the flotation machine of the beneficiating cycle; the final flotation concentrate, containing 55 to 60% WO_3 , constituted a pulp with 30 to 40% solids and was thickened in four pyramidal settling tanks (total area - 12 m², total volume - 15 m³); the slime discharge from these tanks, containing 55 to 65 g/l of solids with 6 to 12% WO_3 , was treated again in a cylindrical settling tank in series with several square settling tanks (total area - 12 m², total volume - 12 m³); however, only 10% solids was recovered by this method, so that in each 15 m³ of the slime discharge, 500 to

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900 kg of valuable product was lost every day. In the preliminary laboratory experiments, conducted in glass cylinders (220 ml capacity), the following flocculating reagents were tested: alkaline extract from sea-weeds; carboxymethylcellulose, polyvinyl alcohol; polyacrilamide; separan 2610; KODT (a flocculant, obtained at the State Institute of Non-Ferrous Metals by condensation of the vat residues after distillation of hexamethylenediamine with dichloroethane and crude tall oil); PANG (partially hydrolyzed polyacrilamide); stiromal (Czechoslovakian reagent - ammonium salt of a copolymer of styrol and maleic anhydride); sodium polyacrylate. Of these, only polyacrilamide, separan 2610, KODT and polyvinyl alcohol were found to have the desired effect on the rate of settling of the pulp and on the quality of the effluent. The effectiveness of these flocculating agents is illustrated by the following data: after 24 h settling, the clarified portion of the final concentrate contained 33 g/l solids; the clarified

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portion of the same concentrate to which 50 to 60 g/t of the flocculant (polyacrilamide or separan) had been added, contained only 1 g/l solids after 10 to 15 min settling. To obtain similar results in the case of rough concentrate, 120 g of the flocculant had to be added per 1 t of the solids in the pulp. After addition of polyvinyl alcohol (300 g/t) or KODT (600 g/t), the clarified portion of the pulp, after 10 to 15 min settling, contained 5 to 6 g/l solids. The effectiveness of the flocculating agents was found to depend on the manner in which they were introduced. When the flocculant, in the form of an 0.1% solution, was added to the pulp in the cylinder all at once, no flocculation occurred unless 150 g/t of the reagent was added, and even then the clarified portion of the pulp after 2 h settling, contained 15 g/l solids; on the other hand, when the flocculant was introduced in three doses, better clarification was attained at a lower consumption (100 g/l) of the flocculating agent; when 150 g/l of the flocculant was added in this manner, the liquid portion of

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the pulp became absolutely clear after 5 to 6 min settling. For rapid measurement of the transparency of the liquid, a photo-exponometer, of the "Leningrad" type, was used; it had been roughly calibrated by determining the position of the pointer for pure water (fifth division on the scale) and for water containing more than 20 g/l solids (second division on the scale), and the relative transparency of the clarified portion of the pulp in various experiments was described by quoting the reading of the instrument. This method was used in presenting the results of experiments in which the effect of the method of adding 50 g/t of polyacrilamide to the rough concentrate on the settling process, had been studied; these results are reproduced in Table 1 under the following headings: settling time, min; transparency of the clarified portion of the liquid when the flocculant, in the form of an 0.5% solution, had been added in six doses; transparency of the clarified liquid when the flocculant, in the form of an 0.006% solution, was added in ten doses. It will be

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seen that if a low consumption of the flocculant is aimed at, it has to be used in a highly diluted form; thus, for instance, when only 50 g/t of the reagent is used, it should be diluted to 0.006%. Similar results were obtained for settling of the final concentrate in the case of which 35 g/t of the flocculant, diluted to 0.002%, gave satisfactory results although, when further dilution was attempted, no flocculation took place unless more reagent was used. The laboratory investigation was followed by a series of industrial tests in which polyacrilamide was used. The flocculant was fed continuously for 38 h into the 8 m thickener; the specific consumption of the reagent was calculated from the data on the quantity of the treated ore and the quantity of flocculant used during this period. When no flocculant was applied, the slime discharge of the thickener contained 50 to 67 g/l solids; in the presence of the flocculant, the content of solids in the slime discharge was reduced to 12 to 20 g/l, the corresponding consumption of the flocculant being 90 to 30 g/t. In

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this way, the content of solids in the slime discharge from the thickener was reduced by more than 75%, giving a daily saving of 3.5 to 6 t of valuable material. Some results of the industrial tests are reproduced in Table 2 under the following headings: conditions (no flocculant; no flocculant; flocculant added; flocculant added), shift; content (%) of WO_3 in the ore, tailings, and rough flotation concentrate, recovery (%) of WO_3 in the rough concentrate; WO_3 content (%) in the final concentrate. The effect of the polyacrilamide addition on thickening of the final concentrate was even more beneficial since, in this case, it was possible to add a larger proportion of this reagent; in the absence of the flocculating agent, the clarified liquid, after 8 h settling, contained 60 g/l solids; when polyacrilamide was added (30 l of 0.5% solution per each 1.55 t of the concentrate), the clarified liquid, after 6 h settling, contained practically no suspended solids. It was estimated that if 50 g of the flocculant were used per 1 t of the

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E193/E483

Application of Polyacrilamide in Thickening of Scheelite Concentrates

rough concentrate (70 to 80 t of which are treated daily), the value of the increased output would reach 120000 to 250000 roubles per annum; in the case of the final concentrate, the application of 0.3 kg of polyacrilamide per day would increase the value of the yearly output by 180000 to 230000 roubles, giving the total savings of 280000 to 460000 roubles per annum. There are 2 tables and 8 references, 6 of which are Soviet and 2 English.

ASSOCIATIONS: Institut tsvetnykh metallov im M.I. Kalinina
(M.I. Kalinin Institute of Non-Ferrous Metals)
Ingichkinskaya obogatitel'naya fabrika
(Ingichkinsky Beneficiation Plant)

Card 9/9

KUZ'KIN, S.F.; BERLINSKIY, I.I.

Effect of froth sparging on an increase in flotation speed
of scheelite and powellite ores. Izv. vys. ucheb. zav.; tsvet.
met. 3 no.3:30-37 '60. (MIRA 14:3)

1. Krasnoyarskiy institut tsvetnykh metallov, Kafedra obogashcheniya
rud redkikh metallov.

(Flotation) (Scheelite) (Powellite)

KUZ'KIN, S.F.; NEBERA, V.P.

Mechanism of polyacrylamide flocculator action. Sbor. nauch. trud.
GINTSVETMET no.33:202-216 '60. (MIRA 15:3)
(Flotation--Equipment and supplies) (Acrylamide)

KUZ'KIN, S.F.; BERLINSKIY, I.I.

Secondary concentration and the kinetics of scheelite and
powellite flotation. Sbor. nauch. trud. GINTSVETMET no.33:
217-236 '60. (MIRA 15:3)
(Scheelite) (Powellite) (Flotation)

KUZ'KIN, S.F.; ZOLIN, S.N.

Phenomena of the aggregation of mineral particles in the pulp.
Izv. vys. ucheb. zav.; tsvet. met. 4 no.4:24-29 '61. (MIRA 14:8)

1. Krasnoyarskiy institut tsvetnykh metallov, kafedra obogash-
cheniya rud redkikh metallov.
(Flotation)

KUZ'KIN, S.F.; ZOLIN, S.N.

Flocculating action of polyacrylamide compounds on certain ore pulp components. Izv. vys. ucheb. zav.; tsvet. met. 5 no.2:45-49 '62.
(MIRA 15:3)

1: Krasnoyarskiy institut tsvetnykh metallov, kafedra obogashcheniya rud redkikh i radioaktivnykh metallov.
(Flotation) (Acrylamide)

KUZ'KIN, Sergey Fedorovich; NEBERA, Vladimir Petrovich; TAUBMAN, A.B., retsenzent; SUVOROVSKAYA, N.A., otv. red.; MAKRUSHINA, Ye.A., red.izd-va; BOLDYREVA, Z.A., tekhn. red.; LOMILINA, L.N., tekhn. red.

[Synthetic flocculants in dewatering processes] Sinteticheskie flokulyanty v protsessakh obezvozhivaniia. Moskva, Gosgortekhzdat, 1963. 243 p. (MIRA 17:1)

KUZ'KIN, S.F.; SOLMYSHKIN, V.I.; CHZHEN YU-LUN [Cheng Yu-lung]

Investigating by methods of radiometry and infrared spectroscopy the mechanism of the interaction of the ANP cation collector with apatite and calcite. Izv. vys. ucheb. zav.; tsvet. met. 6 no.3: 35-39 '63. (MIRA 16:9)

1. Moskovskiy institut stali i splavov, kafedra obogashcheniya poleznykh iskopayemykh.

(Flotation—Equipment and supplies) (Radiometry)
(Spectrum, Infrared)

KUZ'KIN, S.F.; NEBERA, V.P.; YAKUBOVICH, I.A.; ZOLIN, S.N.

Studying the mechanism of the action of polyacrylamide
flocclulants. Izv. vys. ucheb. zav.; tsvet. met. 6 no. 4:34-
43 '63. (MIRA 16:8)

1. Moskovskiy institut stali i splavov, kafedra obogashcheniya
rud redkikh metallov.
(Flotation--Equipment and supplies)

KUZKIN, S. F.; NEBERA, V. P.; ZOLIN, S. N.

"On some points of the theory of suspensions flocculation by polyacrylamides."

report submitted for 7th Intl Mineral Processing Cong, New York, 20-25 Sep 64.

PARSHENKOV, S.A.; KOZ'KIN, S.F.; KHAN, G.A.; PANTEL'YINA, N.F.

Electron microscopy of the state of aggregation of limonite
and ferromolybdlite suspensions in connection with their
floatability. Izv. vys. ucheb. zav.; tsvet. met. 7 no. 4:
30-31 '64 (MIRA 19:1)

1. Moskovskiy institut stali i splavov, kafedra obogashcheniya
rud redkikh i radioaktivnykh metallov.

MIKHAYLOV, P.G., kand.tekhn.nauk; CHUCHUSHKOV, M.K., inzh.; KUZ'KIN, V.A., inzh.

Increasing the efficiency of the system of working inclined layers
with filling. Sbor. KuzNIUI no.9:20-42 '61. (MIRA 16:5)
(Kuznetsk Basin--Coal mine and mining) (Mine filling)

KUZ'KIN, V.G.

Mathematical determination of exhaust pressure impulse of a two-cycle engine. Trudy LKI no.26:95-105 '59. (MIRA 14:9)

1. Kafedra sudovykh dvigateley vnutrennego sgoraniya Leningradskogo korablestroitel'nogo instituta.
(Superchargers)

KUZ'KIN, V.G., inzh.

Effect of a controlled exhaust valve on the operation of a
two-stroke engine with contour scavenging. Sudostroenie 28
no.7:32-35 JI '62. (MIRA 15:8)
(Marine engines) (Valves)

USSR / Soil Science. Organic Fertilizers.

Abs Jour: Ref Zhur-Biol.; No 21, 1958, 95758.

Author : ~~Kuz'ko, T. S.~~, Yarchuk, I. I., Dem'yanenko, V. D.
Inst : Kharkov University.

Title : Experiment in the Use of Humic Fertilizers in
Khersonskaya Oblast.

Orig Pub: V. sb.: Guminovye udobreniya, Khar'kov, Khar'kovsk.
un-t, 1957, 277-284.

Abstract: In 1954 and 1955 in Khersonskaya Oblast, under
production conditions, broad tests (carried out
on chestnut, sandy and calyey soils) of the ef-
fect of humophos during local application under
potatoes, cabbage seedlings and other vegetables
from a calculation of 40-50 g per patch (8-10 c/ha)
showed its high effectiveness under conditions of
good agricultural engineering. -- O. P. Mikhaylova.

Card 1/1

POPOVA, I.M., kand.sel'skohkhoz. nauk; PRISHCHEPA, A.G.; KUZ'KO, L.F.

Effectiveness of fertilizers in the irrigated lands in the
southern Ukraine. Zemledelie 26 no. 4-62-66 Ap '64.
(MIRA 17:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut oroshayemogo
zemledeliya.

USSR/Soil Science. Organic Fertilizers

J-6

Abs Jour : Ref Zhur - Biol., No 20, 1958, No 91477

Author : Khristeva L.A., Yarchuk I.I., Kuz'ko M.A.

Inst : Kharkov Univ.

Title : Physiological Principles in the Technology of Humus Fertilizers.

Orig Pub : V sb.: Guminovyye udobreniya. Khar'kov, Khar'kovsk. un-t, 1957, 163-184

Abstract : No abstract

Card : 1/1

KUZ'KO, O., inzh.

Device for plotting ground line gradients using theodolites.
Na stroi. Mosk. 2 no.6:25 Je '59. (MIRA 12:8)
(Surveying--Instruments)

KUZ'KO, Yu.P.

Ways of reducing the weight and over-all dimensions of powerful presses. Kuz.-shtam. proizv. 1 no.8:18-21 Ag '59.

(MIRA 12:12)

(Power presses)

ROZHKOV, V.M.; SHOFMAN, L.A.; ROZANOV, B.V.; KUZ'KO, Yu.P.; PONGIL'SKIY, N.F.;
LIVANOV, V.A.; LUCHIN, V.V.; KUZNETSOV, K.I.; TSYPER, V.A.;
CHERNOSHTAN, V.K.

Points for pipe presses. Biul.TSIICHM no.9:52
(Pipe mills--Equipment and supplies)

MIRA 15:4)

S/193/61/000/002/006/009
A005/A004

AUTHOR: Kuz'ko, Yu.P.

TITLE: A New Trend in Designing Heavy Presses

PERIODICAL: Byul. tekhn.-ekon, inform., 1961, No. 2, pp. 26 - 30

TEXT: The use of one-piece large-size structural components instead of assembled or welded bodies, which considerably increases productivity, requires the application of unique heavy presses of vertical and horizontal design. The experience in the design and operation of heavy and superheavy presses of universal applicability shows that the present press design do not meet the requirements. New designs of unique heavy presses must meet the following conditions: multiple decrease in the over-all dimensions and weight, and, subsequently, a reduction in time and costs of production; considerable increase in the precision of the forgings being pressed by approaching the dimension of the power units to those of the tool, and by increasing the structural rigidity of the presses; a considerable increase in productivity on account of selecting an expedient stroke magnitude of the press; a drastic increase in operation speed; maximum mechanization and automation by performing the auxiliary operations outside the operation zone of the

Card 1/4

S/193/61/000/002/006/009
A005/A004

A New Trend in Designing Heavy Presses

press. These conditions can be realized by widely using welded-forged structures, rolled plate steel, and prestressed concrete for the foundation parts. Superheavy presses of new design are already produced in the industry. The required conditions are obtained by using designs of one cylinder or the "tandem" design, by increasing the pressure of the pressure fluid in the power cylinders, and by designing the fundamental press units in one piece made of high-strength steels or prestressed reinforced concrete. A simplification in the design of the new superheavy presses is effected by combining the operational functions of several principal press components in one single unit, e.g., the casing serves simultaneously as bandage of the operating cylinder, and the fixing of the tool to the reliably guided power plunger, does away with the movable crosshead. In 1956-1960, new designs of heavy and superheavy hydraulic forging presses were developed with a capacity of 15,000 - 200,000 tons, as well as unique horizontal presses of the "880", "1,700", and "3,000" type; these designs were realized with the participation of quite a number of interested organizations, in particular of the Novo-Kramatorskiy Mashinostroitel'nyy zavod im. Stalina (Novo-Kramatorsk Mechanical Engineering Plant im. Stalin). The main parameters of the new superheavy presses are compared with the parameters of the so-called "Universal" presses of identical capacity and purpose in the brochure by Yu.P. Kuz'ko and Ye.M. Petrushev under the

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S/193/61/000/002/006/009
A005/A004

A New Trend in Designing Heavy Presses

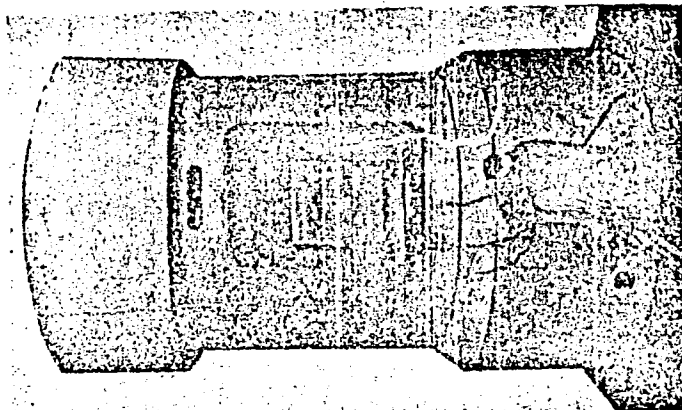
title "Heavy Small-Size Presses". To evaluate this comparison, it has to be taken into account that the total capacity of all unique-heavy presses of 15,000 t and more, which were put into operation in the USSR in 1960, amounts to only 60,000 t. According to preliminary data, by 1965 presses with a total capacity of more than 2 million t have to be put into operation in the USSR, i.e., the actual capacities of the corresponding branches of industry will be increased by more than 30 times during the Seven-Year Plan (See the periodical: Kovochno-shtampovochnoye proizvodstvo, 1959, No. 8, p. 18). The expediency and the special effectiveness of the new structural solutions in unique-power press building are illustrated by the following example: the weight of a forging press of 30,000 t capacity can be decreased from 6,500 t down to 410 t, which also reduce the costs of such a press by 14 times.

Card 3/4

A New Trend in Designing Heavy Presses

S/193/61/000/002/006/009
A005/A004

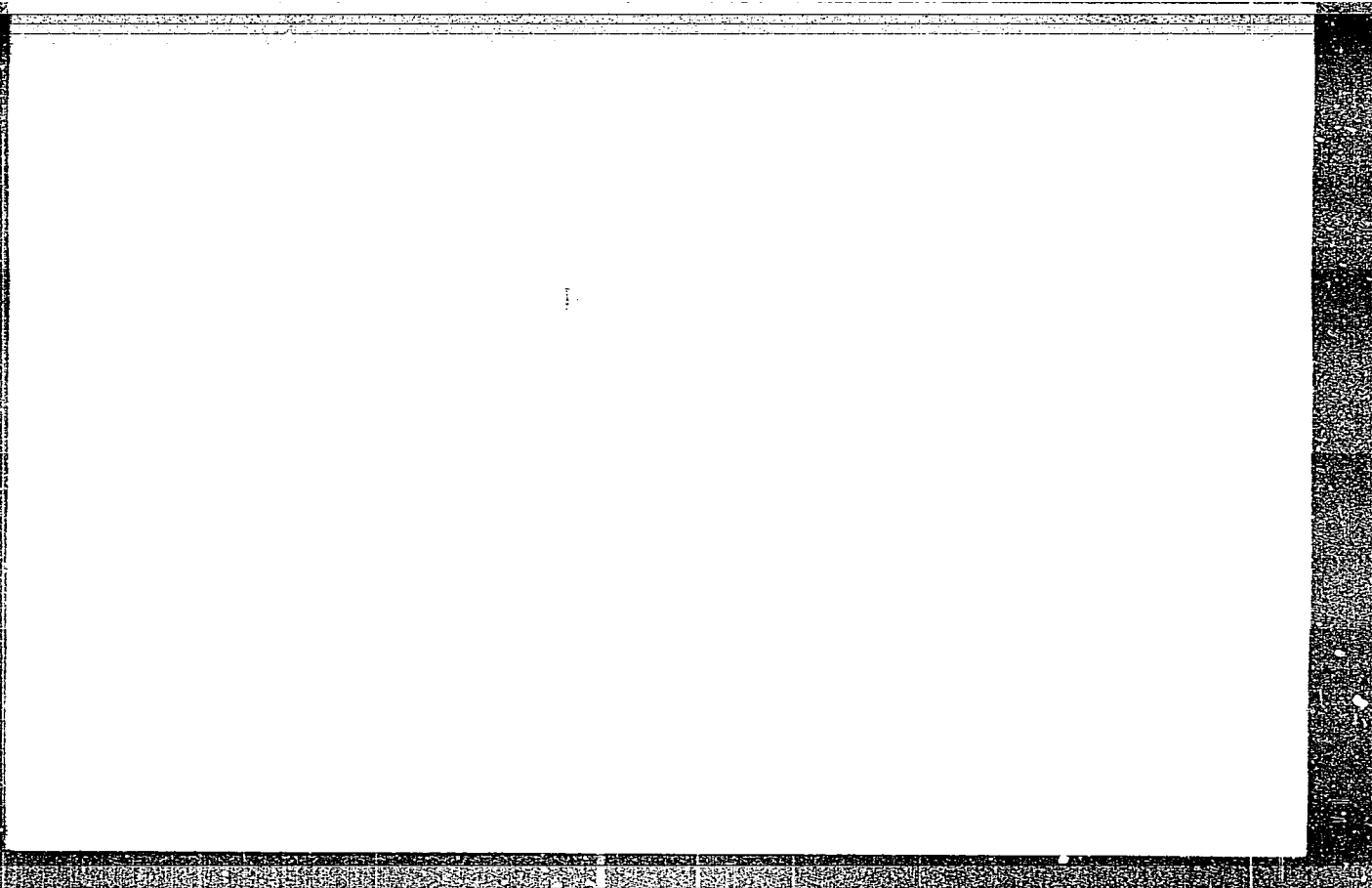
Figure: Total view of a 15,000 ton capacity press of new design



Card 4/4

"APPROVED FOR RELEASE: Monday, July 31, 2000

CIA-RDP86-00513R000928010



APPROVED FOR RELEASE: Monday, July 31, 2000

CIA-RDP86-00513R000928010C

KUZ'KOVA, N.N.

Oldest explorer of the North (in honor of the 75th birthday of A.A.Chernov).
Bul.MOIP. Otd.geol. 28 no.1:69-75 '53. (MLRA 6:11)
(Chernov, Aleksandr Aleksandrovich, 1877-)

KUZ'KOKOVA, N.N.; CHEBYKINA, N.V.

Lime resources for liming soils in Sysola District in the Komi
A.S.S.R., Trudy Komi fil. AN SSSR no.2:27-31 '54. (MLRA 9:11)

(Sysola District--Lime)

KUZ'KOVA, N.N.

Lithological survey of lower Permian deposits in the middle Pechora
Basin. Trudy Komi fil. AN SSSR no.9:135-147 '60. (MIRA 15:1)
(PECHORA VALLEY PETROLOGY)

KUZ'KOVA, N.N.

Correlation of stratigraphic scales of the Lower Permian of the Pechora coal basin, middle and upper Pechora Valley, Kolva-Vishera region, and Timan Ridge. Trudy Inst.geol. Komi fil. AN SSSR no.2: 122-131 '62. (MIRA 15:7)

(Komi A.S.S.R.--Geology, Stratigraphic)

KUZ'KOKOVA, N.N.

Facies and paleogeography of the Lower Permian in the middle
Pechora Valley. Trudy Inst.geol.Komi fil. AN SSSR no.3:55-66
'62. (MIRA 16:9)

(Pechora Valley--Paleogeography)
(Pechora Valley--Geology, Stratigraphic)

KUZ'KOKOVA, N.N.

Aleksandr Aleksandrovich Chernov, 1877-1963; obituary. Izv.
Komi. fil. Geog. ob-va SSSR no.8:96-99 '63. (MIRA 17:6)

CHERNYKH, V.A.; KUL'KOVA, N.N.

'Kochessel' was found in the northern part of the Ural Mountain region. Dokl. AN SSSR 165 no.4:911-914 D '65.

(MIRA 18:12)

L. Institut geologii Komi filiala AN SSSR. Submitted June 4, 1965.

OVSYANNIKOV, N.; ZORIN, N.; MATLIN, G.; KUZKOV, L.; VEMDROV, S.

Improve the full use and preservation of U.S.S.R. water resources.
Rech. transp. 19 no.11:32-35 N '60. (MIRA 13:11)
(Water supply engineering)

KUZLIK, M.

57/49T72

USSR/Medicine - Medical Societies
Medicine - Surgery

May 48

"Minutes of the Meeting of the Leningrad Society
of Surgeons and Orthopedists" 4 1/3 pp

"Vest Khirurgii" Vol LXVIII, No 5

The 251st meeting opened 3 Mar 48. M. Kuzlik was
chairman and Z. A. Lyandres secretary. Several
reports discussed included G. S. Rylova's "Treat-
ment of Ulcers of the Extremities by Paravertebral
Intracutaneous Injections of Novocain."

57/49T72

PRISHCHENP, L.G., dotsent, kand. tekhn. nauk; KUZLYAKIN, Yu.N., aspirant

Methods for electrically heating hotbeds with film coverings.
Izv. TSKHA no. 1:207-212 '65 (MIRA 19:1)

1. Kafedra elektrifikatsii sel'skokhozyaystvennogo proizvodstva
Moskovskoy sel'skokhozyaystvennoy ordena Lenina akademii imeni
Timiryazeva.

P/034/61/000/012/001/003
D265/D305

AUTHORS: Kuźma, Czesław, and Kuźma, Eugeniusz

TITLE: Unbalanced Wheatstone bridge with double primary detector

PERIODICAL: Pomiary, Automatyka, Kontrola, ⁷no. 12, 1961, 481-485

TEXT: From the condition of equilibrium of a Wheatstone bridge, it follows that the sensitivity of the bridge will be increased if the cause which throws the bridge out of balance will affect equally both opposite branches. The primary detectors shown in Fig. 1 should be situated, therefore, close to each other and should work as a point detector for the proper functioning of the circuit. Double thermistors, therefore, shown in Fig. 2, give the ideal condition and this paper provides an analysis of double detector systems as compared with the simple detector bridges. Two cases are considered for the double detector Wheatstone bridge: one with identical elements and the other with elements of different initial resistances. The current gain defined as the amount, by which the

Card 1/3

Unbalanced Wheatstone bridge ...

P/034/61/000/012/001/003
D265/D305

current necessary for the double detector bridge is greater than that required for a similar arrangement, but with a single detector gives the criterion for the analysis of two systems which provides the formulae and graphs showing the following advantages of the double detector bridge circuit: the possibility of decreasing the loading is of importance for accurate temperature measurement and in the cases where the temperature increase affects the accuracy of readings. The increase in the current sensitivity enables less sensitive detectors to be employed and lower voltages to be used. The use of double detectors is especially recommended in bridge circuits which require equal resistances in all branches. There are 9 figures and 7 Soviet-bloc references. ↙

Card 2/3

Unbalanced Wheatstone bridge ...

P/034/61/000/012/001/003
D265/D305

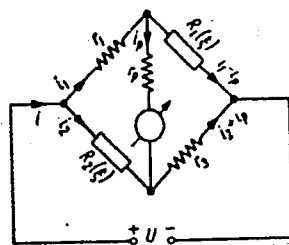


Fig. 1

Wheatstone bridge with double detectors

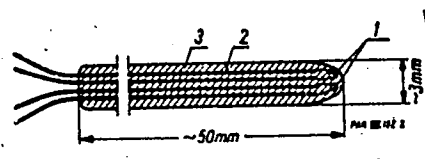


Fig. 2

Double thermistor detector. Legend: 1 - thermistors, 2 - leads,
3 - cover

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KUZMA, C.; KUZMA, E.

The unbalanced Wheatstone bridge with a double measuring element.
Archiw elektrotech 11 no. 1:137-151 '62.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki, Polska Akademia Nauk, Warszawa.

KUZMA, Cz.

Influence of the type of heat treatment on the thermistor properties of sintered cobalt and manganese oxides. Archiw elektrotech 12 no.2: 463-469 '63.

1. Zaklad Elektroniki, Instytut Podstawowych Problemow Techniki, Polska Akademia Nauk, Warszawa.

ADDITIONAL INFO: APT 1-444

...the process of ... material with-
addition reduces the ...
... the A.V. material with the O.O. and 3) the resistivity
and resistivity temperature coefficient ...
... without any substantial loss
... resistivity and
... and lower selection
... figures.

ADDITIONAL INFO: APT 1-444

SUBMITTED: 24 June 64

ENCLOSURE

SUB CODE: MM, EC

NO REF SOV: 001

OTHER: 002

Card

2/2

AUTHOR: Ruzma, Gz.

TITLE: Effect of heat treatment on the thermistor properties of sinters from A sub 6 manganese-nickel material

SOURCE: Arhivum elektrotehniki, v. 18, no. 1, 1968, 234-236

... thermistor element ... manufacture, manganese ...

ABSTRACT: This study was made for the purpose of developing a heat treatment ... material (manganese oxide - nickel oxide mixture of an atomic ratio ... and an outer oxygen activity ... temperature of a ... The sintered samples were coated with a silver paste and heated for ... the electrodes and after rapid air cooling they were subjected to aging at a constant temperature of ... The experimental results show

Card 1/2

ORIGIN	: Poland	R-2
CATEGORY	:	
ABS. JOUR.	: RZhKhim., No. 5 1960, No.	18171
AUTHOR	: Kuzma, E.	
INSO.	: Not given	
TITLE	: Comments on the Effect of Supertemperatures on Thermistors	
ORIG. PUB.	: Pomiary, Automat, Kontrola, 5, No 4, 154-155 (1959)	
ABSTRACT	: The author notes the following inaccuracies in the article by F. Ciborowski, 'The Effect of Thermistor (T) Supertemperatures on the Measurement of Temperature' (RZhKhim, 1958, No 4, 11646): (1) the method proposed by Ciborowski for expressing the resistance of an unloaded rhoestat cannot be applied in the case of T, since their resistance is an exponential rather than a linear function of the load; (2) the resistance of T depends on cooling conditions throughout the temperature range;	
CARD:	1/2	

POL/19-8-1-13/14

2(9)
AUTHOR:

Kuzma, E.

TITLE:

Measurement of Thermistor Thermal Time Constant

PERIODICAL:

Archiwum Elektrotechniki, 1959, Vol 8, Nr 1, pp 201-207
(Poland)

ABSTRACT:

In warming process of thermistor temperature difference T_x between the thermistor temperature T and that of surrounding is varying approximately according to the equation:

$$T_x = T_{x \max} \left(1 - e^{-\frac{t}{\tau}}\right)$$

where $T_{x \max}$ is the temperature difference in steady state, t is the time corresponding to temperature difference T_x , $\tau = \frac{H}{K}$ (sek) is the thermistor thermal time constant equal to the quotient of heat capacity and the dissipation constant. It denotes the time past which the temperature difference is equal to

$$\left(1 - \frac{1}{e}\right) T_{x \max} = 0.63 T_{x \max}$$

ZAKLADZIE
ELEKTRONIKI IPPT,
Poland Card 1/3

POL/19-8-1-13/14

Measurement of Thermistor Thermal Time Constant

Due to difficulties of the heat capacity measurement of thermistor, the determining of its thermal time constant after the classical method is rather troublesome. Therefore, various indirect measurement methods based upon the finding of τ out of the electrical magnitudes are applied. The suggested measurement method of τ makes use of the transient voltage of the thermistor (Fig 3). The space of time counted from the instant of the thermistor being loaded until the thermistor voltage will drop to

$$u(t) = \left(1 + \frac{1}{e}\right) U_0 = 1.37 U_0$$

is taken as the value of τ . The value of the loading current I_0 is so chosen that in steady state of the thermistor resistance it is equal to $R_0 = 0.5 R_{25}$. With the aid of measurement arrangement made after the suggested method the static $U = f(I)$ characteristics as well as the dynamic characteristics of transient voltage of thermistor $u = f(t)$ may be determined. The


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Measurement of Thermistor Thermal Time Constant

POL/19-8-1-13/14

measurement records of the thermistors of Polish origin are given in Table 2 and Fig 6. There are 4 graphs, 1 diagram, 1 circuit diagram and 3 references, 1 of which is English, 1 German and 1 Polish.

SUBMITTED: October 2, 1958



Card 3/3

KUZMA, E.

Thermistors. (To be contd.) p. 28.

RADIOAMATOR (Publication for amateur radio operators. Title varies: before 1954, Radio Amator. Monthly) Warszawa, Poland.
Vol.9, no.11, Nov. 1959.

Monthly list of East European Accessions (EEAI) LC, Vol.9, no.1, Jan. 1959.

Uncl.

9.4320 (2801, 3002, 1015, 1016)

84456
P/034/60/000/007/002/003
A225/A026

AUTHOR: Kuzma, Eugeniusz, Master of Engineering

TITLE: Examination of the Characteristics of Polish-made Thermistors

PERIODICAL: Pomiary-Automatyka-Kontrola, 1960, No. 7, pp. 263-266

TEXT: The article describes the methods employed for determining the following characteristics of Polish-made thermistors: the actual resistance offered by the thermistor at various temperatures, the stability in the functioning of the thermistor at various temperatures, and the time constant. The constant B of the thermistor material shows an error Δ whenever the temperature surpasses a certain value in either direction. Measurements were made for thermistors made of NiO and Mn₂O₃ (marked as A2 for atomic ratio of nickel and manganese 1:2, as A5 for the ratio 1:5), as well as with additions of copper oxide (marked as B2 for 32 % addition of copper oxide to A2, as K2 with 43 % of CuO). The results are shown in Figures 3 (A2), 4 (A5), 5 (K2), and 6 (B2). The error Δ does not exceed 1 % for A5 between 10 and 80°C, for A2 between -5 and 75°C, for B2 between -10 and 60°C, and for K2 between 0 and 60°C. The examination of the stability was conducted after the artificial aging of thermistors at high

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84456

P/034/60/000/007/002/003
A225/A026

Examination of the Characteristics of Polish-made Thermistors

temperatures. The materials examined were A2, A5, and K2. The examinations were conducted in Hoeppler's ultrathermostat in petroleum jelly at 25°C. The temperature was measured with the Beckmann thermometer, the resistance with the Wheatstone bridge. After 10 months in normal room temperature the deviations were less than the error of measurement (0.12 %). Afterwards the thermistors were kept for 3000 hours in a temperature lower by 20 % than the temperature of the aging process. More than 2/3 of the thermistors measured showed deviations smaller than the measuring error, with the rest the deviations did not exceed 1.5 %. Finally the thermistors were held for several hours in temperatures changing suddenly from -70°C to +150°C and vice versa. The deviations were smaller than the error of the measuring instruments. The author states that the quality of the Polish-made thermistors often surpasses in this respect that of thermistors produced abroad. The time constant of the thermistors was measured in a system, the block diagram of which is presented in Figure 11 and the wiring diagram in Figure 12. The stages of the block diagram are as follows: Z1 - Generator 1, T - thermistor stage with switch W, S - the triggering stage, Z2 - Generator 2 controlled by the triggering stage, RC - integrat-

Card 2/3

00456

P/034/60/000/007/002/003
A 225/A026

Examination of the Characteristics of Polish-made Thermistors

ing stage, VL - vacuum-tube voltmeter. Time readings were: 0.1 - 3 sec.; 1-30 sec., the load varied from 0.02 to 25 ma, accuracy 10 %. The time constants for various types are as follows: ZE7 (a pearl, in vacuum): 1 sec., ZE3 (a pearl, in glass tube) - 4 sec., ZE9 (a pearl, fastened on a copper plate): 2-4 sec., ZE8 (indirectly heated in vacuum): 8-20 sec., depending on the thickness of the pearl's insulation. There are 13 figures and 1 table.

ASSOCIATION: Zakład Elektroniki IPPT - PAN (Electronics Institute, Institute for Basic Problems of Engineering, Polish Academy of Science)

Card 3/3

86726

9.4173
9.4320

P/034/60/000/010/004/005
A225/A026

AUTHOR: Kuźma, Eugeniusz, Master of Engineering

TITLE: The Calculations of Thermometric Thermistor Systems

PERIODICAL: Pomiary - Automatyka - Kontrola, 1960, No. 10, pp. 407 - 409

TEXT: The article is an attempt to determine the maximum admissible current which may be applied to thermistors used for temperature measurements. Temperature measuring by thermistors consists in the measurement of the inherent thermistor temperature, which will always be higher than the measured medium due to the heating effect of the measuring current passing through the thermistor. This difference is determined by the so-called "loss coefficient K" of the thermistor. Numerically it is equal to that power which has to be admitted to the thermistor in order to raise its temperature by 1°C. This value K depends on the medium in which the thermistor is placed: the lowest values are for air, higher ones for oil, and still higher for water. The same energy which might only slightly influence the inherent thermistor temperature in water, might falsify the results if used in air without the necessary correction. The maximum power which may be applied to a thermistor with the loss coefficients $K_1, K_2 \dots K_n$

Card 1/4

4X

86726

P/034/60/000/010/004/005
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The Calculations of Thermoelectric Thermistor Systems

(for various media) should not exceed the value in which the minimum K causes the thermistor to raise its temperature above the admissible error. The author then shortly reviews the principles of using the Wheatstone bridge for temperature measuring (his own work on this subject is quoted in a footnote), and shows that the maximum load applied to a thermistor used in the Wheatstone bridge would coincide with the balance condition only if the resistance (or impedance) of the measuring instrument were infinitely high. He also asserts that in case a thermistor is used as one of the bridge arms, the generally accepted principle that the bridge sensitivity is highest when the bridge arms have equal resistance, is not necessarily true. In Figure 8 he shows an example of two bridges used for measuring with identical instrument currents: in one of them the values of the arms are different and calculated so that the load on the thermistor is only $\frac{1}{6}$ of that in the other circuit, which follows the conventional principle of "equal arms". There are 8 figures and 1 Table.

ASSOCIATION: Zakład Elektroniki IPPT-PAN (Electronic Laboratory, Institute of Basic Problems of Engineering, Polish Academy of Sciences)

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Table 1. Values of the loss coefficient of Polish-made thermistors

Type	$K \frac{mW}{^{\circ}C}$		
	Air	Water	Petroleum Jelly
ZE1	8	35	21
ZE2	20	30	55
ZE3	0.6	2.6	1.6
ZE5	0.2	0.009	0.06
ZE7	$0.01 \div 0.02$	—	—

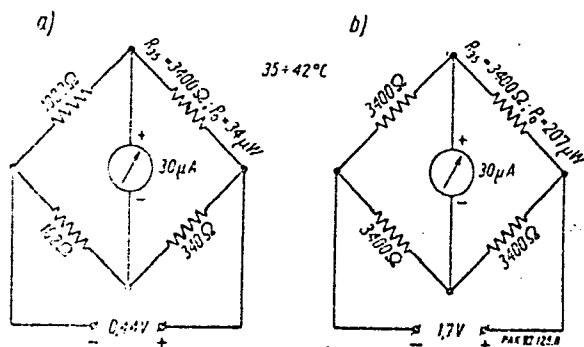
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Figure 8. Comparison of two measuring systems:
a - system calculated for minimum load on thermistor;
b - system with equal bridge arms.



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P/034/61/000/012/001/003
D265/D305

AUTHORS: Kuźma, Czesław, and Kuźma, Eugeniusz

TITLE: Unbalanced Wheatstone bridge with double primary detector

PERIODICAL: Pomiar, Automatyka, Kontrola, no. 12, 1961, 481-485

TEXT: From the condition of equilibrium of a Wheatstone bridge, it follows that the sensitivity of the bridge will be increased if the cause which throws the bridge out of balance will affect equally both opposite branches. The primary detectors shown in Fig. 1 should be situated, therefore, close to each other and should work as a point detector for the proper functioning of the circuit. Double thermistors, therefore, shown in Fig. 2, give the ideal condition and this paper provides an analysis of double detector systems as compared with the simple detector bridges. Two cases are considered for the double detector Wheatstone bridge: one with identical elements and the other with elements of different initial resistances. The current gain defined as the amount, by which the

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current necessary for the double detector bridge is greater than that required for a similar arrangement, but with a single detector gives the criterion for the analysis of two systems which provides the formulae and graphs showing the following advantages of the double detector bridge circuit: the possibility of decreasing the loading is of importance for accurate temperature measurement and in the cases where the temperature increase affects the accuracy of readings. The increase in the current sensitivity enables less sensitive detectors to be employed and lower voltages to be used. The use of double detectors is especially recommended in bridge circuits which require equal resistances in all branches. There are 9 figures and 7 Soviet-bloc references. ✓

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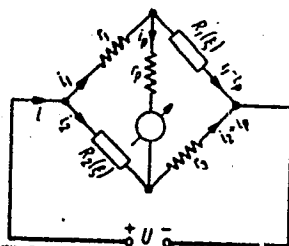


Fig. 1

Wheatstone bridge with double detectors

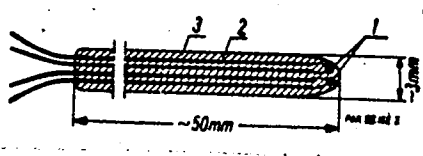


Fig. 2

Double thermistor detector. Legend: 1 - thermistors, 2 - leads,
3 - cover

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P/019/61/010/001/003/006
D223/D305

AUTHOR: Kuzma, E.

TITLE: Production of auto oscillations with the help of
thermistors

PERIODICAL: Archiwum elektrotechniki, v. 10, no. 1, 1961, 201-250

TEXT: A thermistor may be substituted for an equivalent electrical circuit with an inductive and negative resistance as its element. Hence, the thermistor (Th) may be used as a generator of slow sinusoidal oscillations not exceeding a few cycles per second. The advantage of this method consists in the small dimensions of the generator, e.g. the usual LC oscillator for 0.005 c/s needs $L = 10000$ H and $C = 100000$ μ F, while a Th oscillator needs only a capacitor of 30 μ F and a thermistor size of the order of 1 cm. There is a lack of literature on Th oscillators. The previous papers written are all concerned with experimental results. The author systematizes and discusses the basic parameters and characteristics of the Th. The thermal differential equation for polarized Th is

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given and it is shown that it is equivalent to the equation of an electrical circuit, in which the T_h represents an element having inductance, a negative resistance, and a time constant. The generation of oscillations with load resistance connected in parallel or in series with the capacitor of the oscillating circuit is discussed. The circuits are considered from the point of view of the linear and non-linear theory of the reactive power balance of the harmonics. The formulae for the frequency under critical conditions when the oscillations are purely sinusoidal and relative frequency deviation is caused by the appearance of the current harmonics, are presented for series and parallel load connection. The influence of the ambient temperature and applied voltage on the generator frequency is analyzed. The temperature coefficient is negative and equal to about 2 % per degree centigrade. The theory described was confirmed on an experimental circuit, in which the temperature and voltage was varied in the range within ± 5 %. The difference between theoretical and experimental data did not exceed 15 %. There are 35 figures, 4 tables and 14 references: 6 Soviet-bloc and 8 non-Soviet-bloc. The references to the 4 most recent English-

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language publications read as follows: R.E. Burgess, The a.c. admittance of temperature sensitive circuit elements. Proceedings Physical Society, B. 1955, s. 766; F.J. Hyde, The impedance of the thermistor at low frequencies, Journal of Electronics 1955, s. 303; F J. Hyde, Reactive effects in thermistors at very low frequencies. British communications and Electronics, 1957, s. 16; C.J.N. Candy, The specification of the properties of the thermistor as a circuit element in very low frequency systems, Journal I., E.E. 1955, s. 398.

SUBMITTED: April 8, 1960

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Double thermistor feeler ZE 12. Archiv elektrotech 10 no.2:
596-598 '61.

SCHMIDT, B.; KUZMA, E.

Auto-recording of the static voltage-current characteristics
of thermistors. Archiw elektrotech 10 no.2:598-599 '61.